Calendar No. 1056

100TH CONGRESS *2d Session*	SENATE	REPORT 100-584

AVIATION SAFETY RESEARCH ACT OF 1988

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

OF THE

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

S. 2746

October 3 (legislative day, SEPTEMBER 26), 1988.—Ordered to be printed

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U.S. GOVERNMENT PRINTING OFFICE
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S263-23

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Calendar No. 1056

100TH CONGRESS
2d Session

SENATE

REPORT
100-584

AVIATION SAFETY RESEARCH ACT OF 1988

OCTOBER 3 (legislative day, SEPTEMBER 26), 1988.—Ordered to be printed

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 2746]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 2746) to amend the Federal Aviation Act of 1958 relating to aviation research, having considered the same, reports favorably thereon with an amendment in the nature of a substitute and recommends that the bill do pass.

PURPOSE OF BILL

The bill, as reported, requires the Federal Aviation Administration (FAA) to increase its research efforts in several areas affecting air safety, including human factors, to prepare an annual national research plan, and to devote increased funds toward long-term research. The bill also establishes the Civil Aeromedical Institute (CAMI) as a part of the FAA and establishes an FAA Research Advisory Committee.

BACKGROUND AND NEED

The Federal Aviation Act of 1958 directs the Administrator of the FAA to make long-range plans for navigable airspace, to undertake developmental work for improved aircraft and engines, and to develop and test systems and devices to assure safe and efficient use of the national airspace.

Budget constraints and operational priorities have forced the FAA to focus its resources on research relating to the air traffic control mission and on projects with a payoff in the near term. Long-range research has not been undertaken often, and many important safety areas have not received the emphasis they deserve.

Work is needed to determine the ability of an aircraft to withstand stress, to find ways to contain fuels on impact, to simulate air traffic and airport capacity problems, to manufacture low flammability fuels, and to explore the role of human factors in aviation safety.

Human factors research is an area requiring particular emphasis. Statistics indicate that human error has been a factor in over 65 percent of commercial aviation accidents. In a recent report on air safety, the Office of Technology Assessment (OTA) concluded "that long-term improvements in aviation safety will come primarily through systematic operational human factors solutions and that such solutions will be found only with consistent, long-term support for research and development." The FAA has made some efforts in this area with programs like cockpit resource management, but more comprehensive work is needed.

CAMI, located in Oklahoma City, currently administers the pilot medical certification program and does a small amount of research in the aviation medical and human factors areas. Funding and organizational problems have shrunk the staff and diminished the role of CAMI in recent years. The increased emphasis on human factors studies requires a focal point for technical expertise: the establishment of CAMI as a permanent organization will assure continuation of the aeromedical research effort.

Long-term research requires the prospective and strategic thinking of experts in the FAA, in the industry, in the academic and scientific communities, as well as in other agencies of government. In the past, research and development priorities have been determined by operational needs such as improved air traffic control procedures, or by events such as airline crashes or terrorist acts against U.S. airliners. To establish an orderly and strong research program requires a multi-year plan and an outside advisory committee to keep the FAA abreast of developments and new ideas.

Legislative History

S. 2746 was introduced by Senator Kassebaum on August 11, 1988. No hearing was held to specifically address this legislation. However, during the 100th Congress, the Aviation Subcommittee received testimony from numerous witnesses on the need for increased attention by the FAA to certain research programs.

On September 20, 1988, the Committee met in open executive session to consider an amendment in the nature of a substitute to S. 2746. Without objection, the Committee adopted the substitute and ordered the bill, as amended, reported.

Similar legislation (H.R. 4686) was reported on September 8, 1988 by the Committee on Science, Space, and Technology in the House of Representatives. H.R. 4686 passed the House on a voice vote on September 20, 1988.

Summary of Major Provisions

S. 2746, as reported, directs the FAA Administrator to undertake research in a number of broad areas, including aviation maintenance, fire safety, the relationship between human factors and air safety, and simulation models of airports and the air traffic control system for predicting safety and capacity problems.

The bill also directs the Administrator to prepare and transmit to the Congress a national aviation research plan, which would describe for a 15-year period, the research, engineering, and development necessary to ensure continued capacity, safety, and efficiency of aviation. The Administrator is directed, as a part of this plan, to identify complementary and coordinated research efforts conducted by the National Aeronautics and Space Administration (NASA).

The bill establishes CAMI and directs it to conduct research in areas such as the protection and survival of aircraft occupants, medical accident investigation, toxicology and the effect of drugs on human performance, the impact of disease and disability on human performance, vision and its relationship to human performance and equipment design, human factors, and agency work force optimization.

S. 2746 establishes a Research Advisory Committee to provide advice and recommendations to the Administrator to assist in carrying out the national research plan and to coordinate with similar research being conducted outside the FAA. The Administrator is directed to ensure that universities, corporations, associations, consumers, and government agencies other than the FAA are represented.

The bill increases the authorization for appropriations for FAA Research, Engineering and Development and Demonstrations for fiscal year 1990 by $25 million, to be used solely for human factor research projects and activities. The bill also requires that not less than 15 percent of the funds appropriated to this account in fiscal years 1989 and 1990 be dedicated to long-term research projects.

Estimated Costs

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office.

U.S. Congress,
Congressional Budget Office,
Washington, DC, September 23, 1988.

Hon. Ernest F. Hollings,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC.

Dear Mr. Chairman: The Congressional Budget Office has prepared the attached cost estimate for S. 2746, the Aviation Safety Research Act of 1988.

If you wish further details on this estimate, we will be pleased to provide them.

Sincerely,

James L. Blum, *Acting Director.*

Congressional Budget Office, Cost Estimate

1. Bill number: S. 2746.
2. Bill title: Aviation Safety Reserach Act of 1988.
3. Bill status: As ordered reported by the Senate Committee on Commerce, Science and Transportation, September 20, 1988.

4. Bill purpose: S. 2746 would require the Administrator of the Federal Aviation Administration (FAA) to conduct or supervise aviation maintenance and fire safety research and research on the relationship between human factors and air safety, and to develop simulation models of the air traffic control system and airport design and operating procedures. The bill would require that at least 15 percent of the amounts appropriated for FAA research, engineering and development for fiscal years 1989 and 1990 be for long-term research projects. In addition, S. 2746 would establish a Civil Aeromedical Institute and a research advisory committee.

5. Estimated cost to the Federal Government:

[By fiscal year, in millions of dollars]

	1989	1990	1991	1992	1993
Authorization level		25			
Estimated outlays		16	5	2	1

The costs of this bill fall within budget function 400.

Basis of estimate: CBO assumes that the funds authorized will be appropriated prior to the beginning of fiscal year 1990. Estimated outlays are based on historical spending rates.

6. Estimated cost to State and local Governments: None.

7. Estimate comparison: None.

8. Previous CBO estimate: On August 16, 1988, the Congressional Budget Office prepared a cost estimate for H.R. 4686, a similar bill ordered reported by the House Committee on Science, Space, and Technology, August 11, 1988. The estimated cost of both bills is the same.

9. Estimate prepared by: Mitchell Rosenfeld.

10. Estimate approved by: C.G. Nuckols (for James L. Blum, Assistant Director for Budget Analysis).

Regulatory Impact Statement

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evalution of the regulatory impact of the legislation, as reported.

The bill as reported, will strengthen the existing authority of the FAA to conduct research in a number of areas affecting aviation safety. It will have no effect on the number of individuals regulated or on the personal privacy of such persons. The increased authorized appropriation of $25 million for human factors research in fiscal year 1990 will have a negligible effect on the economy.

This bill imposes no additional paperwork on individuals or businesses in the private sector. Section 4 of the bill requires the FAA to submit to the Congress an annual national aviation research plan, describing planned FAA research work for a 15-year period, as well as an annual report on the accomplishments of FAA research completed during the prior year. The FAA is directed to submit this report beginning with the fiscal year 1990 budget and annually thereafter.

SECTION-BY-SECTION ANALYSIS

SECTION 1.—SHORT TITLE

Section 1 states that the short title of the bill is the "Aviation Safety Research Act of 1988."

SECTION 2.—AVIATION MAINTENANCE AND FIRE SAFETY RESEARCH

Section 2 amends section 312(b) of the Federal Aviation Act of 1958 by directing the Administrator of the FAA to undertake or supervise research to develop technologies and to conduct data analyses for predicting the effects of aircraft design, maintenance, testing, wear, and fatigue on the life of aircraft and on air safety; to develop methods of analyzing and improving aircraft maintenance technology and practices (including nondestructive evaluation of aircraft structures); to assess the fire and smoke resistance of aircraft materials; to develop improved fire and smoke resistant materials for aircraft interiors; to develop and improve fire and smoke containment systems for in-flight aircraft fires; and to develop advanced aircraft fuels with low flammability and technologies for containment of aircraft fuels for the purpose of minimizing post-crash fire hazards.

In the wake of the April 28, 1988 Aloha Airlines accident in which a section of the fuselage of a 19-year-old Boeing-77 was ripped off during flight, the FAA convened a meeting of industry experts to examine the issue of aging aircraft and aircraft maintenance. The Committee believes this type of activity to be critical to the development of a better understanding of aircraft maintenance in a deregulated environment. This legislation strives to ensure that research work on aging aircraft and aircraft maintenance remains a priority for the FAA.

Additionally, the Committee strongly believes that increased efforts must be made by the FAA in the area of fire safety. The number of survivors of the August 31, 1988 crash at the Dallas/Ft. Worth Airport was remarkable in that recent improvements in aircraft materials substantially slowed the post-accident fire, allowing for greater passenger evacuation. In its July 1988 report on aviation safety, the OTA identified a number of areas of research work needed to improve passenger survivability from post-accident or in-flight fires. The Committee agrees that such research work is critical, and directs the FAA to undertake research activities in these areas.

SECTION 3.—RESEARCH ON RELATIONSHIP BETWEEN HUMAN FACTORS AND AIR SAFETY AND ON SIMULATION MODELING

Section 3 amends section 312(c) of the Federal Aviation Act by directing the Administrator to undertake or supervise research to develop a better understanding of the relationship between human factors and aviation accidents and between human factors and air safety; to enhance air traffic controller and mechanic and flight crew performance; to develop a human-factor analysis of the hazards associated with new technologies to be used by air traffic controllers, mechanics, and flight crews; and to identify innovative and

effective corrective measures for human errors which adversely affect air safety.

Human error has been a contributing factor in a majority of all aviation accidents. The Committee believes the potential payoff in human factors research is great, and may result in significant safety improvements in the performance of air traffic controllers, airline flight crews, and other critical aviation personnel. To date, human factors research has not been given the attention by the FAA that the Committee believes necessary. This provision, as well as the increased authorization for funding for human factors research activities in fiscal year 1990, is intended to make human factors a research priority for the FAA.

The Administrator is also directed under this section to undertake or supervise a research program to develop simulation models of the air traffic control system and airport design and operating procedures which will provide analytical technology for predicting airport and air traffic control safety and capacity problems, for evaluating planned research projects, and for testing proposed revisions in airport and air traffic control operations programs.

SECTION 4.—RESEARCH PLAN AND REPORTS

Section 4 adds a new subsection to section 312 of the Federal Aviation Act directing the Administrator to prepare and transmit to Congress a national aviation research plan. Not later than the date of submission of the President's budget for fiscal year 1990, and for each fiscal year thereafter, the Administrator is directed to review, revise, publish, and transmit this national aviation research plan to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

The national aviation research plan shall describe, for a 15-year period, the research, engineering, and development the Administrator believes necessary to ensure the continued capacity, safety, and efficiency of aviation in the United States, considering emerging technologies and forecasted needs of civil aeronautics, and to provide the highest degree of safety in air travel. The plan shall cover all research conducted by the FAA and shall identify complementary and coordinated research efforts conducted by NASA.

For projects for which the Administrator anticipates requesting funding, the national aviation research plan shall set forth: (A) for the first 2 years of the plan, detailed estimates of the schedule, cost, and manpower levels for each research project, including a description of the scope and content of each major contract, grant, or interagency agreement; (B) for the 3rd, 4th, and 5th years of the plan, estimates of the total cost of each major project for that year and any additional major research projects which may be required to meet long-term objectives and which may have significant impact on future funding requirements; and (C) for the 6th and subsequent years of the plan, the long-term objectives which the Administrator considers to be necessary to ensure that aviation safety will be given the highest priority.

Section 4 also requires that the Administrator report to the Committee on Science, Space, and Technology of the House of Repre-

sentatives and the Committee on Commerce, Science, and Transportation of the Senate on the accomplishments of the research completed during the preceding year. This report is to be transmitted together with each transmittal of the revised national aviation research plan, and organized so as to allow comparison with the plan in effect for the current year.

Section 4 also makes conforming changes to the table of contents of the Federal Aviation Act.

SECTION 5.—CIVIL AEROMEDICAL RESEARCH

Section 5 amends section 106 of title 49, United States Code, relating to the FAA, by adding a new subsection which establishes within the FAA an institute to conduct civil aeromedical research known as the "Civil Aeromedical Institute."

This section also amends section 312 of the Federal Aviation Act by adding a new subsection authorizing CAMI to conduct civil aeromedical research, including, but not limited to, research related to: (1) protection and survival of aircraft occupants; (2) medical accident investigation and airman medical certification; (3) toxicology and the effects of drugs on human performance; (4) the impact of disease and disability of human performance; (5) vision and its relationship to human performnce and equipment design; (6) human factors of flight crews, air traffic controllers, mechanics, inspectors, and airway facility technicians; and (7) agency work force optimization, including training, equipment design, reduction of errors, and identification of candidate tasks for automation.

In July 1986, pursaunt to Public Law 98–466, the National Academy of Sciences (NAS) reported to Congress regarding the problems with ventilation, carbon dioxide, ozone, tobacco smoke, microbial aerosols, cosmic radiation, and fire hazards in the airline cabin environment. The Committee is sensitive to these concerns and believes that it is within the mandate of CAMI to develop research programs to evaluate and monitor environmental quality in aircraft cabins for the protection and survival of airline passengers. CAMI should pursue the recommendations made in the NAS report, including, but not limited to, collecting and analyzing data on ventilation rates, cabin pressure, carbon monoxide, respirable suspended particulates, microbial aerosols, ozone concentrations, and cosmic radiation, and assisting the FAA to promulgate regulations for on-ground ventilation and to develop a program for fire emergencies.

SECTION 6.—ADVISORY COMMITTEE

Section 6 amends section 312 of the Federal Aviation Act by adding a new subsection establishing a Research Advisory Committee. Under this provision, the Administrator is directed to establish a research advisory committee in the FAA not later than 180 days after the date of enactment of this legislation. The advisory committee shall provide advice and recommendations to the Administrator regarding needs, objectives, plans, approaches, content, and accomplishments with respect to the aviation research program. The advisory committee is also directed to assist in ensuring that

such research is coordinated with similar research being conducted outside the FAA.

The advisory committee shall be composed of not more than 20 members appointed by the Administrator from among persons who are not employees of the FAA and who are specifically qualified to serve on the committee by virtue of their education, training, or expertise. The Administrator is directed, in appointing the members of the committee, to ensure that universities, corporations, associations, consumers, and other government agencies are represented. The Administrator is also charged with designating the chairman of the advisory committee.

Members of the advisory committee shall serve without pay, except that the Administrator may allow any member, while attending meetings of the advisory committee or a subordinate committee, travel or transportation expenses in accordance with section 5703 of title 5, United States Code. The Administrator is required to provide support staff for the advisory committee, and may establish subordinate committees to the advisory committee to provide advice on specific areas of research conducted under sections 312 and 316 of the Federal Aviation Act. Upon request of the advisory committee, the Administrator shall provide such information, administrative services, and supplies as are determined to be necessary for the advisory committee to carry out its functions.

This section also exempts the advisory committee from section 14 of the Federal Advisory Committee Act, which would require the filing of a charter with the Office of Management and Budget, as well as biennial renewal.

Not more than one-tenth of 1 percent of the funds made available to carry out research under sections 312 and 316 for fiscal years beginning after September 30, 1988, may be used by the Administrator for the activities of the advisory committee. The specific (1/10 of one percent) funding limitation in the bill is intended to ensure that money is available for transportation expenses necessary to enable research advisory committee members to participate in committee activities. The Committee is aware of certain funding limitations for advisory committees administered by the Department of Transportation, and the "application of certain limitations" clause is intended to exempt the research advisory committee from this and other limitations.

SECTION 7.—FUNDING

Section 7 amends section 502(b)(2) of the Airport and Airway Improvement Act of 1982, the current authorization for appropriations for FAA Research, Engineering and Development, and Demonstrations, by requiring that in each of these fiscal years the FAA dedicate at least 15 percent of the amount appropriated to long-term research projects.

In establishing this requirement for long-term research, the Committee believes that it is necessary to ensure that FAA research and development activities address future needs as well as those related to more immediate concerns. However, the Committee has not determined that the 15 percent set-aside should be made a permanent part of the FAA research authorization. The Committee in-

tends to revisit this issue and will review FAA's progress in conducting long-term research when it considers an extension of the current authorization for FAA Research, Engineering and Development, and Demonstrations, which expires at the end of fiscal year 1990.

Under the current authorization for FAA research activities for fiscal year 1989, the Congress has established several sub-groups, such as air traffic control, navigation, weather, in which a minimum amount of research funds are to be dedicated. In considering this legislation, the Committee did not believe it prudent to require that within each of these sub-groups, the FAA be required to use 15 percent of its funds for long-term research programs. Rather, by establishing an aggregate 15 percent requirement, the Committee has attempted to provide FAA with needed flexibility with respect to how much research work in each sub-group is long-term in nature. This flexibility should provide adequate resources to enable the FAA to accomplish research work aimed at addressing the more immediate priorities in aviation safety. However, it is expected that the FAA will use its best efforts to conduct long-term research in each area, and the Committee will closely review the annual report submitted by the FAA on its research accomplishments from the prior year.

This section also increases the fiscal year 1990 authorization for appropriations for FAA Research, Engineering and Development, and Demonstrations by $25 million, with this increase to be used solely for human factors research projects and activities. This increase in funding is based on a recommendation from the OTA as to the amount needed to ensure that the FAA has the resources to effectively examine the human factors issue.

Under this section, the term "long-term research project" means a research project which is identified as a discrete project in the aviation research plan required by this legislation and which is unlikely to result in a final rulemaking action within five years, or in initial installation of operations equipment within 10 years, after the date of commencement of such project.

Changes in Existing Law

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman).

Federal Aviation Act of 1958

Section 312 of that Act

Development Planning

GENERAL

Sec. 312. (a) * * *

AIRCRAFT

(b) The Administrator is empowered to undertake or supervise such developmental work and service testing as tends to the creation of improved aircraft, aircraft engines, propellers, and appliances. *The Administrator shall undertake or supervise research to develop technologies and to conduct data analyses for predicting the effects of aircraft design, maintenance, testing, wear, and fatigue on the life of aircraft and on air safety, to develop methods of analyzing and improving aircraft maintenance technology and practices (including nondestructive evaluation of aircraft structures), to assess the fire and smoke resistance of aircraft materials, to develop improved fire and smoke resistant materials for aircraft interiors, to develop and improve fire and smoke containment systems for in-flight aircraft fires, and to develop advanced aircraft fuels with low flammability and technologies for containment of aircraft fuels for the purpose of minimizing post-crash fire hazards.* For such purpose, the Administrator is empowered to make purchases (including exchange) by negotiation, or otherwise, of experimental aircraft, aircraft engines, propellers, and appliances, which seem to offer special advantages to aeronautics.

RESEARCH AND DEVELOPMENT

(c) The Administrator shall develop, modify, test, and evaluate systems, procedures, facilities, and devices, as well as define the performance characteristics thereof, to meet the needs of safe and efficient navigation and traffic control of all civil and military aviation except for those needs of military agencies which are peculiar to air warfare and primarily of military concern, and select such systems, procedures, facilities, and devices as will best serve such need and will promote maximum coordination of air traffic control and air defense systems. *The Administrator shall undertake or supervise research to develop a better understanding of the relationship between human factors and aviation accidents and between human factors and air safety, to enhance air traffic controller and mechanic and flight crew performance, to develop a human-factor analysis of the hazards associated with new technologies to be used by air traffic controllers, mechanics, and flight crews, and to identify innovative and effective corrective measures for human errors which adversely affect air safety. The Administrator shall undertake or supervise a research program to develop simulation models of the air traffic control system and airport design and operating procedures which will provide analytical technology for predicting airport and air traffic control safety and capacity problems, for evaluating planned research projects, and for testing proposed revisions in airport and air traffic control operations programs.* Contracts may be entered into for this purpose without regard to section 3643 of the Revised Statutes, as amended (31 U.S.C. 529). When there is any substantial question as to whether a matter is of primary concern to the military, the Administrator is authorized and directed to determine whether he or the appropriate military agency shall have responsibility. Technical information concerning any research and development projects of the military agencies which have potential application to the needs of, or possible con-

flict with, the common system shall be furnished to the Administrator to the maximum extent necessary to insure that common system application potential is properly considered and potential future conflicts with the common system are eliminated.

RESEARCH PLAN AND REPORTS

(d)(1) The Administrator shall prepare, review, revise, publish, and transmit a national aviation research plan to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives not later than the date of the submission to Congress of the President's budget for fiscal year 1990, and for each fiscal year thereafter. The plan shall describe, for a 15-year period, the research, engineering, and development considered by the Administrator necessary to ensure the continued capacity, safety, and efficiency of aviation in the United States, considering emerging technologies and forecasted needs of civil aeronautics, and provide the highest degree of safety in air travel. The plan shall cover all research conducted under this section and section 316 of this Act and shall identify complementary and coordinated research efforts conducted by the National Aeronautics and Space Administration with funds specifically appropriated to such Administration. In addition, for projects for which the Administrator anticipates requesting funding, such plan shall set forth—

(A) for the first 2 years the plan, detailed annual estimates of the schedule, cost, and manpower levels for each research project, including a description of the scope and content of each major contract, grant, or interagency agreement;

(B) for the 3d, 4th, and 5th years of the plan, estimates of the total cost of each major project for such years and any additional major research projects which may be required to meet long-term objectives and which may have significant impact on future funding requirements; and

(C) for the 6th and subsequent years of the plan, the long-term objectives which the Administrator considers to be necessary to ensure that aviation safety will be given the highest priority.

(2) Subject to section 316(d)(2) of this Act and the regulations prescribed to carry out such section, the Administrator shall report annually, beginning with the date of transmission of the first aviation research plan as required by paragraph (1), to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives on the accomplishments of the research completed during the preceding fiscal year. The report shall be transmitted together with each plan transmittal required under paragraph (1) and shall be organized so as to allow comparison with the plan in effect for such year under this subsection.

CIVIL AEROMEDICAL RESEARCH

(e) The Civil Aeromedical Institute established by section 106(j) of title 49, United States Code, is authorized to conduct civil aeromedical research, including, but not limited to, research related to—

(1) protection and survival of aircraft occupants;

(2) medical accident investigation and airman medical certification;

(3) toxicology and the effects of drugs on human performance;

(4) the impact of disease and disability on human performance;

(5) vision and its relationship to human performance and equipment design;

(6) human factors of flight crews, air traffic controllers, mechanics, inspectors, and airway facility technicians; and

(7) agency work force optimization, including training, equipment design, reduction of errors, and identification of candidate tasks for automation.

RESEARCH ADVISORY COMMITTEE

(f)(1) Not later than 180 days after the date of the enactment of this subsection, the Administrator shall establish in the Federal Aviation Administration a research advisory committee.

(2) The advisory committee shall provide advice and recommendations to the Administrator regarding needs, objectives, plans, approaches, content, and accomplishments with respect to the aviation research program carried out under this section and section 316. The committee shall also assist in assuring that such research is coordinated with similar research being conducted outside of the Federal Aviation Administration.

(3) The advisory committee shall be composed of not more than 20 members appointed by the Administrator from among persons who are not employees of the Federal Aviation Administration and who are specially qualified to serve on the committee by virtue of their education, training, or experience. The Administrator in appointing the members of the committee shall ensure that universities, corporations, associations, consumers, and other government agencies are represented.

(4) The chairman of the advisory committee shall be designated by the Administrator.

(5) Members of the advisory committee shall serve without pay; except that the Administrator may allow any member, while attending meetings of the advisory committee or a subordinate committee, travel or transportation expenses in accordance with section 5703 of title 5, United States Code.

(6) The Administrator shall provide support staff for the advisory committee. The Administrator may establish subordinate committees to the advisory committee to provide advice on specific areas of research conducted under this section and section 316.

(7) Upon request of the advisory committee, the Administrator shall provide such information, administrative services, and supplies as the Administrator determines are necessary for the advisory committee to carry out its functions.

(8) Section 14 of the Federal Advisory Committee Act shall not apply to the advisory committee established under this subsection.

(9)(A) Not more than 1/10 of 1 percent of the funds made available to carry out research under this section and section 316 for

fiscal years beginning after September 30, 1988, may be used by the Administrator to carry out this subsection.

(B) No limitation on the amount of funds available for obligation by or for the advisory committee shall be applicable with respect to the funds made available to carry out this subsection.

AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982

Section 506 of that Act

SEC. 506. AIRWAY IMPROVEMENT PROGRAM.

(a) * * *

(b) RESEARCH, ENGINEERING, AND DEVELOPMENT, AND DEMONSTRATIONS.—

(1) * * *

(2) GENERAL AUTHORIZATION.—For research, engineering and development, and demonstration projects and activities under section 312 of the Federal Aviation Act of 1958 and paragraph (1) of this subsection, there is authorized to be appropriated from the Trust Fund—

(A) * * *

(B) for fiscal year 1989—

(i) $135,866,000 solely for air traffic control projects and activities;

(ii) through (vi) * * *

(vii) $2,600,000 solely for environmental projects and activities[; and],

except that not less than 15 percent of the amount appropriated pursuant to this subparagraph shall be for long-term research projects; and

[(C) for fiscal year 1990, $222,000,000.]

(C) for fiscal year 1990—

(i) $25,000,000 solely for human factors research projects and activities; and

(ii) $221,530,000 for all other research projects and activities,

except that not less than 15 percent of the amount appropriated pursuant to this subparagraph shall be for long-term research projects.

As used in this paragraph, the term "long-term research project" means a research project which is identified as a discrete project in the aviation research plan required by section 312(d)(1) of the Federal Aviation Act of 1958 and which is unlikely to result in a final rulemaking action within 5 years, or in initial installation of operational equipment within 10 years, after the date of the commencement of such project.

* * * * * * *

TITLE 49, UNITED STATES CODE

Section 106 of that Title

§ 106. Federal Aviation Administration

(a) through (i) * * *

(j) There is established within the Federal Aviation Administration an institute to conduct civil aeromedical research under section 312(e) of the Federal Aviation Act of 1958. Such institute shall be known as the "Civil Aeromedical Institute".

○

Calendar No. 1057

100TH CONGRESS *2d Session*	SENATE	REPORT 100-585

CERTIFICATE OF DOCUMENTATION FOR THE VESSEL "GIPSY"

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

OF THE

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ON

S. 2777

OCTOBER 3 (legislative day, SEPTEMBER 26), 1988.—Ordered to be printed

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U.S. GOVERNMENT PRINTING OFFICE

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Calendar No. 1057

100TH CONGRESS
2d Session

SENATE

REPORT
100-585

CERTIFICATE OF DOCUMENTATION FOR THE VESSEL "GIPSY"

OCTOBER 3 (legislative day, SEPTEMBER 26), 1988.—Ordered to be printed

Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 2777]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 2777) to authorize a certificate of documentation for the vessel *Gipsy,* having considered the same, reports favorably thereon without amendment and recommends that the bill do pass.

PURPOSE OF THE LEGISLATION

S. 2777, as reported, grants coastwise trading privileges to the vessel *Gipsy.*

BACKGROUND AND NEEDS

Section 27 of the Merchant Marine Act of 1920, commonly referred to as the Jones Act, requires that vessels transporting passengers between points in the United States be constructed in the United States, be continuously owned by U.S. citizens, and be continuously operated under the U.S.-flag. The Jones Act applies to all vessels, irrespective of size or intended use.

When the facts applicable to a particular vessel suggest that the U.S.-built or the U.S.-owned requirements have not been satisfied, the Coast Guard may not issue a document granting coastwise trading privileges for that vessel unless the requirements are statutorily waived.

The vessel *Gipsy* (official No. 903276) is a 65-foot gaff-rigged ketch. Built of solid oak in 1932 at Skagen, Denmark, the 66-ton *Gipsy* was constructed when wooden boat building was at its peak

for vessels of this type and size. Bill and Toni Shattenberg of Juneau, Alaska, are the first American owners of the *Gipsy,* and currently use the vessel as their office and home. The Shattenbergs would like to charter the *Gipsy* for pleasure cruises so that others might have the chance to experience sailing on a traditional gaff-rigged ketch.

Chartering of the *Gipsy* constitutes coastwise trade under the Jones Act. Therefore, in order to obtain the necessary documentation for such trade, the law requires that the vessel be built in the United States and be owned throughout its history by U.S. citizens.

As the *Gipsy* was built in Denmark, and the Shattenbergs are the first U.S. owners in the vessel's 56-year history, a legislative waiver is needed to allow them to engage in the coastwise trade.

LEGISLATIVE HISTORY

S. 2777 was introduced on September 13, 1988, by Senator Stevens. On September 20, 1988, in open executive session, the Committee considered S. 2777, and ordered the legislation reported favorably without objection and without amendment.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office.

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington DC, September 21, 1988.

Hon. ERNEST F. HOLLINGS,
Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has reviewed S. 2777, a bill to authorize a certificate of documentation for the vessel *Gipsy.* This bill was ordered reported by the Senate Committee on Commerce, Science, and Transportation on September 20, 1988. Enactment of S. 2777 is not expected to have any impact on the federal budget or on those of state or local governments.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Deborah Reis, who can be reached at 226-2860.

Sincerely,

JAMES L. BLUM, *Acting Director.*

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported.

Because S. 2777 does not create any new programs, the legislation will have no additional regulatory impact, and will result in no additional reporting requirements. The legislation will have no further effect on the number or types of individuals and businesses regulated, the economic impact of such regulation, the personal

privacy of affected individuals, or the paperwork required from such individuals and businesses.

SECTION-BY-SECTION ANALYSIS

The bill consists of one section. It provides that, notwithstanding sections 12105, 12106, 12107, and 12108 of title 46, United States Code, and section 27 of the Merchant Marine Act, 1920 (46 App. U.S.C. 883) as applicable on the date the bill is enacted, the *Gipsy* may be issued a certificate of documentation to engage lawfully in the coastwise trade.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

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